AMENDMENTS TO THE CLAIMS

Please **AMEND** claims 11, 35 and 40 as shown below.

The following is a complete list of all claims in this application.

Claims 1-7 (Cancelled)

8. (Previously Presented) A method for producing an abrasive carbon foam, comprising:

comminuting coal to form a particulate coal;

blending said particulate coal with from about 1 to about 10% by volume of a carbide precursor to form a reactive blend for improving abrasive properties of the abrasive carbon foam, wherein the carbide precursor is selected from the group consisting of tungsten, silicon and titanium; and

heating said reactive blend in a mold under a non-oxidizing atmosphere to a first temperature ranging from about 300° C to about 600° C, wherein the pressure is controlled to a range from about 50 psi to about 500 psi; and

soaking at this temperature for a period ranging from about 10 minutes to about 12 hours to form an abrasive carbon foam.

9. (Previously Presented) The method for producing an abrasive carbon foam of claim 8, further comprising:

carbonizing said abrasive carbon foam by heating to a second temperature ranging from about 600°C to about 1600°C in an inert atmosphere and holding at said second temperature for a period ranging from about 1 to about 3 hours; and

graphitizing said carbonized foam by heating said abrasive carbon foam to a third temperature ranging from about 1700°C to about 3000°C in an inert atmosphere and holding at said third temperature for a period of greater than about one hour to form;

wherein said carbide precursor comprises a member selected from the group consisting of materials capable of reacting with carbon to form carbides under carbon calcining and graphitizing conditions.

10. (Cancelled)

11. (Currently Amended) The method for producing an abrasive carbon foam of claim 9, wherein said ~~carbon~~ carbide precursor is a powder having particle sizes below about 100 microns.

12. (Previously Presented) The method for producing an abrasive carbon foam of claim 8, wherein said particulate coal exhibits a free swell index ranging from about 3.5 to about 5.0.

13. (Presently Presented) A method of forming an abrasive carbon foam, comprising:

comminuting coal to form a particulate coal;

blending said particulate coal with from about 1 to about 10% by volume of a carbide precursor to form a reactive blend, wherein the carbide precursor is selected from the group consisting of tungsten, silicon and titanium;

heating said reactive blend in a mold under a non-oxidizing atmosphere to a first temperature ranging from about 300° C to about 600° C, wherein the first heating step includes controlling the pressure ranging from about 50 psi to about 500 psi and soaking at this temperature for a period ranging from about 10 minutes to about 12 hours to form a green foam blend;

carbonizing said green foam blend to form a carbonized foam by heating to a second temperature ranging from about 600°C to about 1600°C in an inert atmosphere and holding at said second temperature for a period ranging from about 1 to about 3 hours to form a carbonized foam; and

graphitizing said carbonized foam by heating said carbonized foam to a third temperature ranging from about 1700°C to about 3000°C in an inert atmosphere and holding at said third temperature for a period of greater than about one hour to form said abrasive carbon foam.

14. (Previously Presented) The method of forming an abrasive carbon foam of claim 13, wherein said particulate coal exhibits a free swell index ranging from about 3.5 to about 5.0.

15. (Previously Presented) The method of forming an abrasive carbon foam of claim 13, wherein said carbide precursor comprises a member selected from the group consisting of materials capable of reacting with carbon to form carbides under carbon calcining and graphitizing conditions.

16. (Cancelled)

17. (Previously Presented) The method of forming an abrasive carbon foam of claim 13, wherein said carbide precursor is powder having particle sizes below about 100 microns.

18. (Previously Presented) The method of forming an abrasive carbon foam of claim 13, wherein the abrasive carbon foam has a semi-crystalline, largely isotropic, porous coal-based structure having a density ranging from about 0.2 to about 0.5 g/cm^3.

19. (Previously Presented) The method of forming an abrasive carbon foam of claim 18, wherein the density ranges from about 0.3 to about 0.4g/cm^3.

20. (Previously Presented) The method of forming an abrasive carbon foam of claim 13, wherein said coal particulate is a high volatile bituminous coal containing a volatile matter ranging from about 35% to about 45% by weight.

21. (Previously Presented) The method of forming an abrasive carbon foam of claim 20, wherein said high volatile bituminous coal has a Gieseler initial softening temperature above about 380° C.

22. (Previously Presented) The method of forming an abrasive carbon foam of claim 21, wherein said high volatile bituminous coal has a Gieseler initial softening temperature ranging from about 380° C to about 400° C.

23. (Previously Presented) The method of forming abrasive carbon foam of claim 20, wherein said high volatile bituminous coal has a plastic range of at least about 50° C.

24. (Previously Presented) The method of forming an abrasive carbon foam of claim 20, wherein said high volatile bituminous coal has a plastic range ranging from about 75° C to about 100° C.

25. (Previously Presented) The method of forming an abrasive carbon foam of claim 20, wherein said high volatile bituminous coal has a maximum fluidity of at least several hundred ddpm as determined by ASTM D2639.

26. (Previously Presented) The method of forming an abrasive carbon foam of claim 25, wherein said high volatile bituminous coal has a maximum fluidity of more than 2000 ddpm as determined by ASTM D2639.

27. (Previously Presented) The method of forming an abrasive carbon foam of claim 20, wherein said high volatile bituminous coal exhibits an expansion of at least about 20% as determined by Arnu dilatation.

28. (Previously Presented) The method of forming an abrasive carbon foam of claim 27, wherein said high volatile bituminous coal exhibits an expansion of at least about 100% as determined by Arnu dilatation.

29. (Previously Presented) The method of forming an abrasive carbon foam of claim 20, wherein said high volatile bituminous coal comprises:

from about 50 to about 60% by weight of fixed carbon; and

less than about 30% by weight inert maceral material;

wherein the high volatile bituminous coal exhibits a vitrinite reflectance in the range from about 0.80 to about 0.95 as determined by ASTM D2798.

30. (Previously Presented) The method of forming an abrasive carbon foam of claim 8, wherein the abrasive carbon foam has a density ranging from about 0.2 g/cm^3 to about 0.5 g/cm^3.

31. (Previously Presented) The method of forming an abrasive carbon foam of claim 8, wherein the abrasive carbon foam has a density ranging from about 0.3 g/cm^3 to about 0.4 g/cm^3.

Claims 32-34 (Cancelled)

35. (Currently Amended) The method of forming an ~~method~~ abrasive carbon foam of claim 31, wherein said particulate coal exhibits a free swell index ranging from about 3.75 to about 4.5.

36. (Presently Presented) An abrasive carbon foam, comprising:

a semi-crystalline porous coal-based structure having a density ranging from about 0.2 to about 0.5 g/cm^3, wherein the density is varied by an introduction of an inert non-oxidizing gas into a reaction vessel; and

wherein the semi-crystalline porous coal-based structure includes a metallic carbide for improving abrasive character of the abrasive carbon foam, wherein the carbide precursor is selected from the group consisting of tungsten, silicon and titanium.

Claims 37-39 (Cancelled)

40. (Currently Amended) The abrasive carbon foam of claim 36, wherein the abrasive carbon foam has a density ranging from about 0.3 to about 0.4 g/cm^3.

41. (Previously Presented) The abrasive carbon foam of claim 36, wherein the abrasive carbon foam has pore sizes of below about 300 μm.